IN THE CLAIMS

Please replace all prior versions, and listings, of claims in the application with the following list of claims. Additions are indicated by underlining and deletions are indicated by strikeouts.

1. (Previously Presented) An article comprising:

an electrical crossbar array comprising at least two crossed conductors, at least one of which is a nanoscopic wire constructed and arranged to be movable from a first position to a second position.

2. (Canceled)

3. (Previously Presented) An article as in claim 1, wherein the at least two conductors are in electrical contact with each other.

4. (Canceled)

5. (Previously Presented) An article as in claim 1, wherein the at least two conductors are not in contact with each other.

6. (Canceled)

7. (Previously Presented) An article as in claim 1, wherein the at least two conductors comprise a first wire disposed adjacent a second wire at a junction.

8. (Previously Presented) An article as in claim 7, wherein a first conductor of the at least two crossed conductors is positioned on a substrate.

9. (Previously Presented) An article as in claim 8, wherein the first conductor is positioned intermediate the substrate and a second conductor of the at least two crossed conductors.

10. (Previously Presented) An article as in claim 9, wherein the second conductor is supported above the first conductor, relative to the substrate.

11-12. (Canceled)

13. (Previously Presented) An article as in claim 7, wherein the second conductor has sufficient stiffness to remain free of contact with the first conductor.

14. (Previously Presented) An article as in claim 13, wherein the second conductor has a sufficient Young's modulus, such that the second conductor is capable of deformable van der Waals contact with the first wire at the junction, upon exposure to a stimulus.

15. (Canceled)

16. (Previously Presented) An article as in claim 1, wherein the crossbar array comprises a first set and second set of at least two parallel conductors.

17. (Previously Presented) An article as in claim 16, wherein the first set of parallel conductors is perpendicular to the second set of parallel conductors.

18. (Previously Presented) An article as in claim 16, wherein the second set of conductors is disposed adjacent the first set of conductors at a plurality of junctions.

19. (Canceled)

20. (Previously Presented) An article as in claim 1, further comprising a contact electrode in electrical contact with at least one of the conductors.

21. (Previously Presented) An article as in claim 20, wherein the at least one conductor is attached to the contact electrode.

22. (Previously Presented) An article as in claim 20, wherein the at least one conductor is covalently attached to the contact electrode.

23. (Previously Presented) An article as in claim 1, wherein each of the at least two conductors is in electrical contact with a different contact electrode.

24-55. (Canceled)

56. (Currently Amended) An article comprising:

~~An~~ an electrical crossbar array comprising at least two crossed conductors defining a memory element able to be switched between at least two readable states, at least one of the conductors being constructed and arranged to be movable from a first position to a second position, the article free of means addressing the memory element to effect switching of the memory element between the at least two states, wherein at least one of the conductors is a nanoscopic conductor produced by a process comprising forming the conductor, and transporting the conductor onto a surface.

57. (Currently Amended) An article comprising:

~~An~~ an electrical crossbar array comprising at least two crossed conductors defining a memory element able to be switched between at least two readable states, at least one of the conductors being constructed and arranged to be movable from a first position to a second position, the article free of auxiliary circuitry defining the memory element, wherein at least one of the conductors is a nanoscopic conductor produced by a process comprising forming the conductor, and transporting the conductor onto a surface.

58. (Previously Presented) An article as in claim 57, wherein the memory element comprises a junction of the two crossed conductors.

59. (Original) An article as in claim 57, wherein the auxiliary circuitry includes transistors and capacitors.

60-89. (Canceled)

90. (Previously Presented) An article comprising:

an electrical crossbar array comprising at least two crossed nanoscopic conductors defining a memory element capable of being switched reversibly between at least two readable states, at least one of the conductors being constructed and arranged to be movable from a first position to a second position.

91. (Previously Presented) An article as in claim 90, wherein the step of switching comprises biasing the at least two nanoscopic conductors.

92. (Previously Presented) An article as in claim 90, wherein information stored in the memory element is volatile.

93. (Previously Presented) An article as in claim 90, wherein information stored in the memory element is non-volatile.

94. (Previously Presented) An article as in claim 90, wherein one readable state comprises the two conductors in van der Waals contact.

95. (Previously Presented) An article as in claim 90, wherein the two conductors have sufficient van der Waals adhesion to maintain contact.

96. (Previously Presented) An article comprising:

an electrical crossbar array comprising at least two crossed nanoscopic conductors defining a memory element capable of being switched irreversibly between at least two readable states, at least one of the conductors being constructed and arranged to be movable from a first position to a second position.

97. (Previously Presented) An article as in claim 96, wherein the step of switching comprises biasing the at least two nanoscopic conductors.

98. (Previously Presented) An article comprising:

an electrical crossbar array comprising at least two crossed conductors defining a memory element diode, at least one of the conductors being constructed and arranged to be movable from a first position to a second position, the article being free of auxiliary circuitry defining the memory element diode.

99. (Previously Presented) An article as in claim 98, wherein the two crossed conductors comprise a nanotube disposed adjacent a second wire at a junction.

100. (Previously Presented) An article as in claim 99, wherein the nanotube is a semiconductor.

101. (Previously Presented) An article as in claim 100, wherein the second wire is a metallic conductor.

102. (Previously Presented) An article as in claim 100, wherein the second wire is a semiconductor.

103. (Previously Presented) An article as in claim 100, wherein the second wire is a semiconducting nanotube.

104. (Previously Presented) An article as in claim 103, wherein the second wire is a metallic nanotube.

105-106. (Canceled)

107. (Currently Amended) An article as in claim 1, wherein the nanoscopic wire is a nanotube ~~is single-walled~~.

108. (Previously presented) An article as in claim 107, wherein the nanotube is a single-walled carbon nanotube.

109. (Previously presented) An article as in claim 107, wherein the nanotube is a multiwall carbon nanotube.

110. (Previously Presented) An article as in claim 1, wherein the nanotube is a semiconducting nanotube.

111. (Previously Presented) An article as in claim 1, wherein the nanotube is a metallic nanotube.

112. (Previously Presented) An article as in claim 1, wherein the nanoscopic wire comprises a nanotube rope.

113. (Canceled)

114. (Previously Presented) The article of claim 1, wherein at least one of the conductors is produced by a process comprising forming the conductor, and transporting the conductor onto a surface.

115. (Previously Presented) The article of claim 90, wherein at least one of the conductors is produced by a process comprising forming the conductor, and transporting the conductor onto a surface.

116. (Previously Presented) The article of claim 96, wherein at least one of the conductors is produced by a process comprising forming the conductor, and transporting the conductor onto a surface.

117. (Previously Presented) The article of claim 98, wherein at least one of the conductors is produced by a process comprising forming the conductor, and transporting the conductor onto a surface.

118. (New) An article as in claim 1, wherein at least one crossed conductors is attached to a chemically patterned surface, the surface comprising at least first and second portions which attract the at least one crossed conductors.

119. (New) An article as in claim 118, wherein at least one of the first portion and the second portion is defined by a self-assembled monolayer.

120. (New) An article as in claim 118, wherein at least one of the first portion and the second portion comprises a micro-phase separated block copolymer structure.

121. (New) An article as in claim 1, wherein the nanoscopic wire is grown from catalyst nanoparticles.

122. (New) An article, comprising:

an electrical crossbar junction defined by a nanotube and a conductor, wherein the nanotube and the conductor, when in contact at the electrical crossbar junction, define a rectifying Schottky diode.

123. (New) An article, comprising:

an electrical crossbar array defined by a plurality of conductors and a plurality of nanotubes which cross the plurality of conductors at intersections, wherein a plurality of the intersections are unique data storage elements and are switched between at least "on" and "off" readable states by solely applying dissimilar or similar electrical potential to one or more of the conductors and one or more of the nanotubes that define the unique data storage elements, whereby for each of said elements, the one or more nanotubes deforms and electrically connects, or disconnects, respectively, to the one or more conductors to switch the unique data storage element to the "on" or "off" state, respectively, upon the application of the dissimilar or similar electrical potential, and whereby when switched to the "on" or "off" state, the unique data storage element remains in said state absent application of a similar, or dissimilar electrical potential, respectively, to the one or more conductors and the one or more nanotubes defining the unique data storage element, but when a similar, or dissimilar electrical potential, respectively, is applied between the one or more conductors and the one or more nanotubes defining the unique data storage element, the unique data storage element returns to an "off" or "on" state, respectively.

124. (New) An article, comprising:

an electrical crossbar junction defined by a plurality of conductors and a plurality of nanotubes which cross the plurality of conductors at intersections, wherein at least one conductor and/or nanotube is positioned in relation to a chemically patterned surface, wherein the chemically patterned surface comprises at least one portion that attracts the at least one conductor and/or nanotube during fabrication.

125. (New) An article comprising:

an electrical crossbar array comprising at least two crossed conductors, at least one of which is a nanoscopic wire.

126. (New) An article comprising:

a self-assembled monolayer defining a delineated pattern; and

at least two crossed conductors associated with the self-assembled monolayer, at least one of the conductors being a nanoscopic wire.

127. (New) An article comprising:

an electrical crossbar array comprising a wire crossed with a conductor defining a memory element able to be switched between at least two readable states, the device free of means addressing the memory element to effect switching of the memory element between the at least two states.

128. (New) An article comprising:

an electrical crossbar array comprising a wire crossed with a conductor defining a memory element able to be switched between at least two readable states, the device free of auxiliary circuitry defining the memory element.

129. (New) An article comprising:

an electrical crossbar array comprising a wire crossed with a conductor defining a memory element capable of being switched reversibly between at least two readable states.

130. (New) An article comprising:

an electrical crossbar array comprising a wire crossed with a conductor defining a memory element capable of being switched irreversibly between at least two readable states.

131. (New) An article comprising:

an electrical crossbar array comprising a wire crossed with a conductor defining a memory element diode, the device being free of auxiliary circuitry defining the memory element diode.

132. (New) An article comprising:

an electrical crossbar array comprising at least two crossed conductors, at least one of which is a nanoscopic wire constructed and arranged to be movable from a first position to a second position.

133. (New) An article comprising:

an electrical crossbar array comprising at least two crossed conductors defining a memory element able to be switched between at least two readable states, at least one of the conductors being constructed and arranged to be movable from a first position to a second position, the article free of means addressing the memory element to effect switching of the memory element between the at least two states, wherein at least one of the conductors is a nanoscopic conductor produced by a process comprising forming the conductor, and transporting the conductor onto a surface.

134. (New) An article comprising:

an electrical crossbar array comprising at least two crossed conductors defining a memory element able to be switched between at least two readable states, at least one of the conductors being constructed and arranged to be movable from a first position to a second position, the article free of auxiliary circuitry defining the memory element, wherein at least one of the conductors is a nanoscopic conductor produced by a process comprising forming the conductor, and transporting the conductor onto a surface.

135. (New) An article comprising:

an electrical crossbar array comprising at least two crossed nanoscopic conductors defining a memory element capable of being switched reversibly between at least two readable states, at least one of the conductors being constructed and arranged to be movable from a first position to a second position.

136. (New) An article comprising:

an electrical crossbar array comprising at least two crossed nanoscopic conductors defining a memory element capable of being switched irreversibly between at least two readable states, at least one of the conductors being constructed and arranged to be movable from a first position to a second position.

137. (New) An article comprising:

an electrical crossbar array comprising at least two crossed conductors defining a memory element diode, at least one of the conductors being constructed and arranged to be movable from a first position to a second position, the article being free of auxiliary circuitry defining the memory element diode.

138. (New) An article, comprising:

an array of memory defined at least in part by an array of nanoscopic wires reversibly moveable between a first stable state and a second stable state, the wires positioned across a series of trenches.

139. (New) An article, comprising:

an array comprising a wire disposed proximate a conductor, the wire and the conductor together defining a memory element able to be switched between at least two readable states, the array free of means addressing the memory element to effect switching of the memory element between the at least two states.

140. (New) An article comprising:

an array comprising a wire disposed proximate a conductor, the wire and the conductor together defining a memory element able to be switched between at least two readable states, the array free of auxiliary circuitry defining the memory element.

141. (New) An article, comprising:

a memory element comprising a plurality of nanoscopic wires crossing a plurality of conductors, the memory element able to rectify signals between the plurality of nanoscopic wires.

142. (New) A memory device, comprising:

a memory element comprising at least one nanoscopic wire, the memory element having a first stable state and a second stable state, the memory element being mechanically reversibly switchable between the first stable state and the second stable state by an electric field, wherein the at least one nanoscopic wire forms part of a rectifying Schottky diode when in the first stable state but not when in the second stable state.

143. (New) An article, comprising:

an electrical crossbar array comprising a first wire disposed adjacent a second wire at a junction, at least one of which is a nanoscopic wire, wherein the second wire is capable of deformable van der Waals contact with the first wire at the junction, upon exposure to a stimulus, and wherein the first wire and the second wire, when in contact, define a rectifying Schottky diode.

144. (New) An article, comprising:

an electrical crossbar array comprising at least two crossed conductors, at least one of which is a nanoscopic wire, wherein the nanoscopic wire is movable between a first position in contact with the second conductor of the at least two conductors, and a second position not in contact with the second conductor, and wherein the nanoscopic wire and the second conductor, when in contact, define a rectifying Schottky diode.

145. (New) An electrical crossbar junction array, comprising:

a first electrical crossbar junction defined by a first carbon nanotube and a first conductor, wherein the first carbon nanotube and the first conductor, when in contact at the

first electrical crossbar junction, define a first rectifying Schottky diode;

a second electrical crossbar junction defined by the first carbon nanotube and a second conductor, wherein the first carbon nanotube and the second conductor, when in contact at the second electrical crossbar junction, define a second rectifying Schottky diode;

a third electrical crossbar junction defined by a second carbon nanotube and the first conductor, wherein the second carbon nanotube and the first conductor, when in contact at the third electrical crossbar junction, define a third rectifying Schottky diode; and

a fourth electrical crossbar junction defined by the second carbon nanotube and the second conductor, wherein the second carbon nanotube and the second conductor, when in contact at the fourth electrical crossbar junction, define a fourth rectifying Schottky diode;

wherein electrical conduction through a diode is limited to one direction, thereby preventing cross talk between the first carbon nanotube and the second carbon nanotube when the first carbon nanotube and the second carbon nanotube each are in contact with the first conductor or the second conductor.

146. (New) A method comprising:

forming a nanoscopic wire on a surface in a pattern dictated by a mechanically patterned surface.

147. (New) A method for growing one or more nanoscopic wires on a substrate comprising:

providing a substrate;

patterning two or more electrodes on a surface of the substrate; and

growing the one or more nanoscopic wires in the presence of an electric field applied between the two or more electrodes, thereby causing the one or more nanoscopic wires to grow between the two or more electrodes.

148. (New) A method for aligning one or more nanoscopic wires on a substrate comprising:

providing a substrate;

patterning two or more electrodes on a surface of the substrate;

providing the one or more nanoscopic wires; and

providing an electric field between the two or more electrodes, thereby causing the one or more nanoscopic wires to align between the two or more electrodes.

149. (New) A method comprising:

growing a nanoscopic wire in the presence of an electric field of intensity sufficient to orient the growth of the wire.

150. (New) An article, comprising:

an electrical crossbar array comprising a nanoscopic wire disposed adjacent a conductor at a junction, wherein the nanoscopic wire is capable of deformable van der Waals contact with the conductor at the junction, upon exposure to a stimulus, and wherein the nanoscopic wire and the second conductor.